



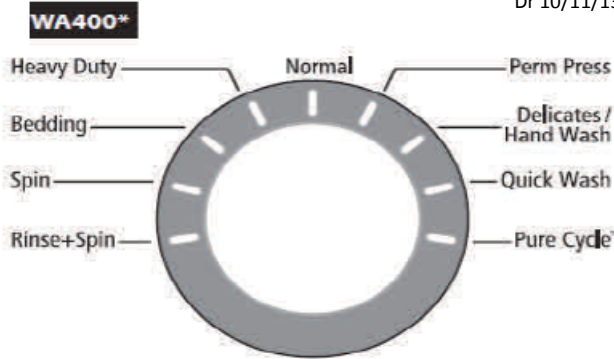
Fast Track Troubleshooting

IMPORTANT SAFETY NOTICE – “For Technicians Only” This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

Model: WA400****/AA
BOM Models:
WA400PJHDWR/AA

Dr 10/11/13

Publication # APWA400PJHD Revision Date 8/6/2012



Caution: Retrieve error codes from “Service Mode” **BEFORE** entering “Quick Test Mode”

Service Mode: This mode allows more detailed operation tests and troubleshooting, to enter press Delay Start & Extra Rinse simultaneously with the power on. Mode is confirmed with 3 beeps.

In Service Mode the following tests can be performed:

Quick Spin Test: Press & hold Delay Start & Pre Soak for 3 sec. This accelerates the drum motor from 0 to max RPM over a few minutes. Note: Stay with the washer during this test, out of balance detection is bypassed and the door may not lock. Press the Start/Pause during the test to hold its spinning speed for 10 minutes before going back to Quick Spin Test Mode. To Exit Press Delay Start & Pre Soak for 3 sec.

Cycle Count: Press Pre Soak to see total number of washings.

Soft Ware #: Press Soil Level to see the software version Info.

Fast Time Down: Press Temp to advance to the next cycle

Error Codes: Press Spin button and “d” is displayed. Then to view stored fault codes, turn Jog-Dial. Press Start/Pause while the code is displayed to view the number of cycles since the error occurred.

Demo Mode: Press Pre Soak & Extra Rinse for 3 sec. Mode cancelled when powered off.

Peripheral (Main PCB) input Tests: Press Extra Rinse and “In” is displayed:

1. Then turn the Jog-Dial so that the Normal LED is turned on. The Water Temperature will be displayed in Celsius.
2. Then turn Jog-Dial so that the Perm Press LED is turned on. The Water Temperature will be displayed in Fahrenheit.
3. Then turn the Jog-Dial so that the Delicates/Hand Wash LED is turned on. The door status will be displayed (OP if open, CL if closed).
4. Then turn the Jog-Dial so that the Quick Wash LED is turned on. The door lock Switch status will be displayed (UL if unlocked, Lo if locked).
5. Then turn the Jog-Dial so that Pure Cycle LED is turned on. The Water Frequency will be displayed, “256” (25.6KHz) is base frequency.

Quick Test Mode:

Note: This test erases all faults and memory.
To enter press Spin, Soil Level & Power simultaneously with the power off.

1. All LED's light up and the washer beeps as it enters the Quick Test Mode.
2. The unit displays the software version for a second then clears the EEPROM.
3. After the displaying the software version, LCD will display Model information. If EEEE is displayed the PCB assy. is defective.
4. When the version is displayed, turn the Jog-Dial so that the version disappears. Press the following keys to test the various components

Press Spin to test Drain Pump
Press Temp to cycle through the Water Valves circuit test in this order: Cold, Eco Warm, Warm, Hot, Hot-Cold, and All.
Press Soil Level to test Door Lock/Unlock.

When either Test or Spin is displayed on the LCD, press Start/Pause to conduct the motor test. In Test mode, you can test the clockwise and counterclockwise movement of the motor. However, the water level must satisfy the heater water level (24300) to enter Test mode. In Spin mode, you can test the motor at a high rpm.

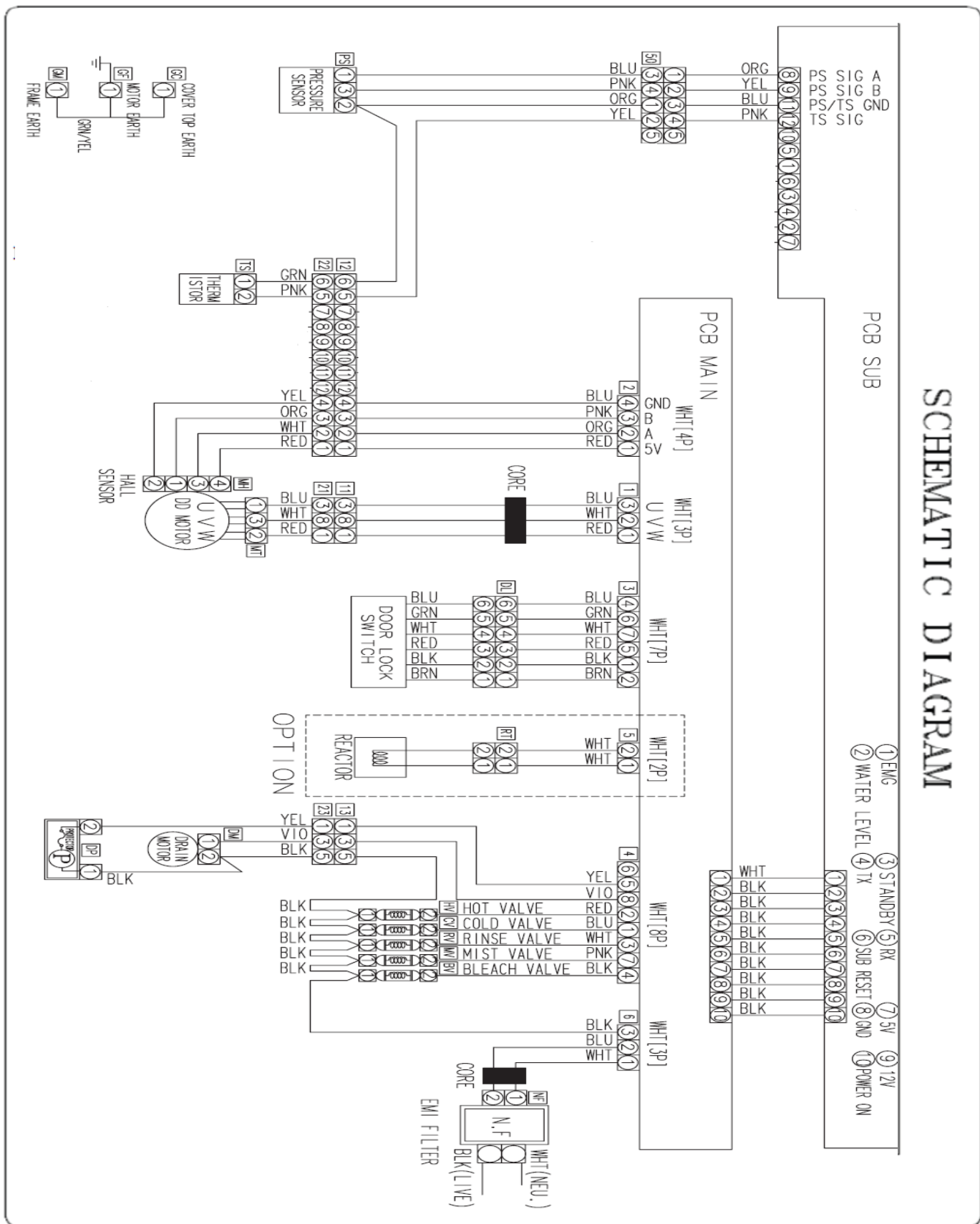
Warranty (USA):

Parts/Labor =>	1 Year
Control PCB =>	2 Years
Stainless Steel =>	3 Years
DD Motor Parts =>	10 Years



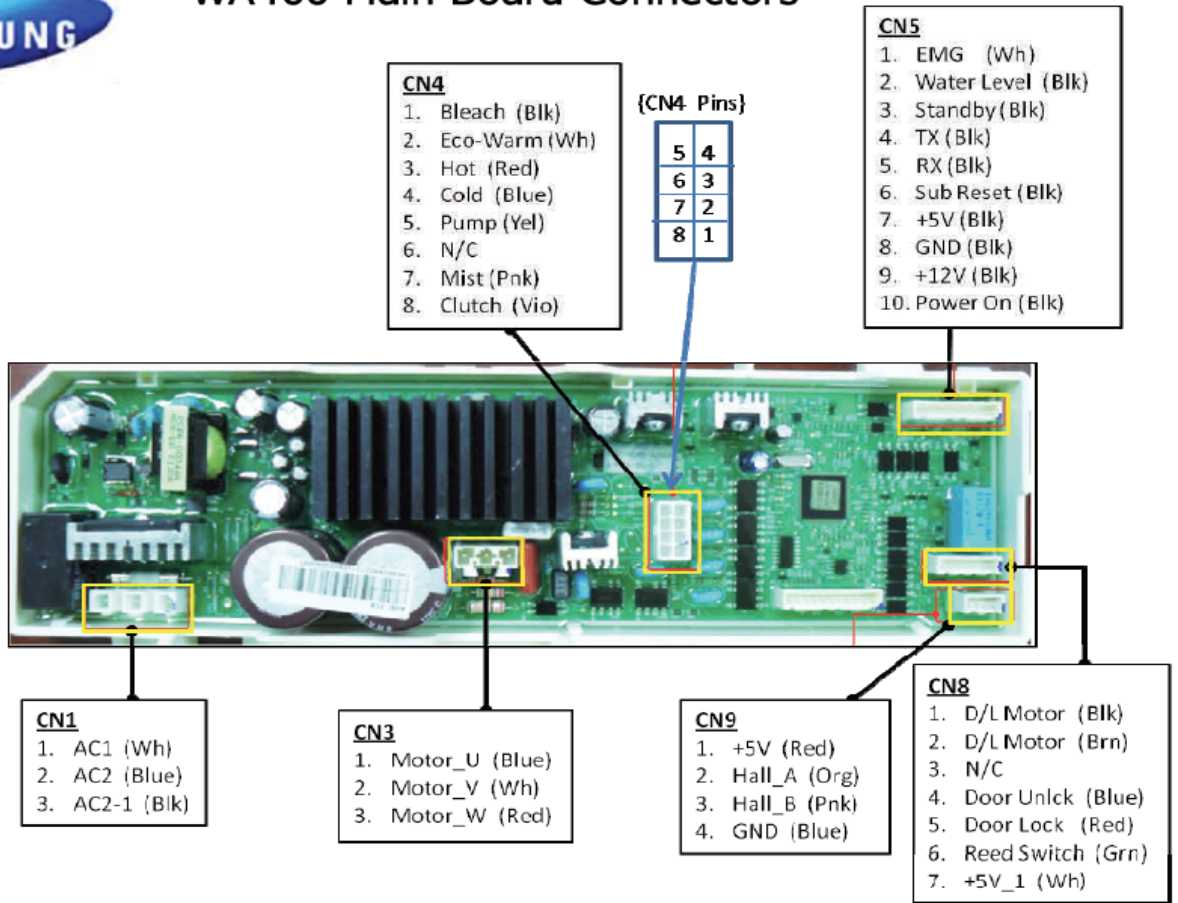
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SCHEMATIC DIAGRAM



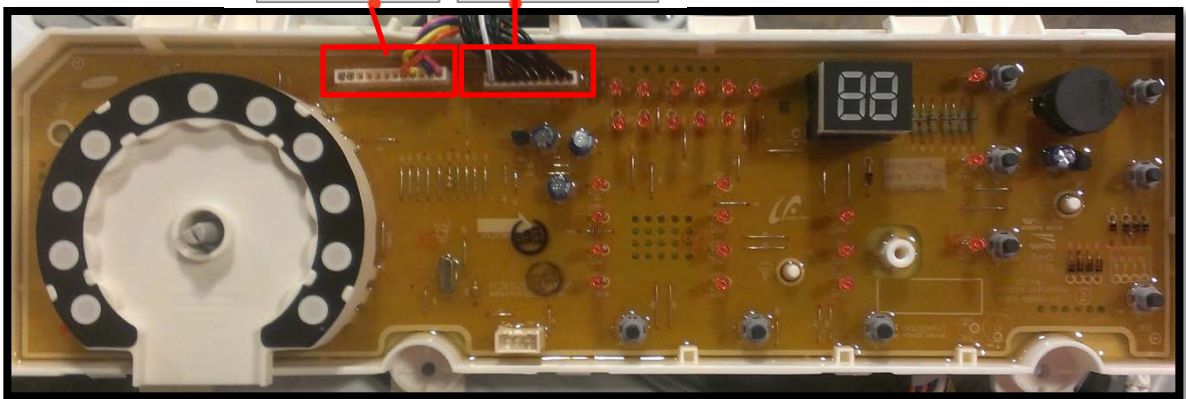








WA400 Main Board Connectors

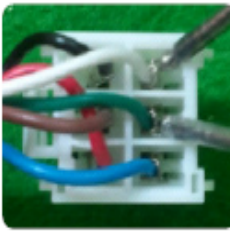
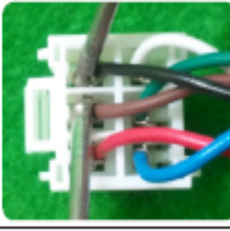

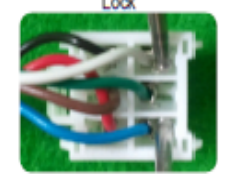









- CN8**
1. NC
 2. NC
 3. NC
 4. NC
 5. NC
 6. NC
 7. NC
 8. GND
 9. Water_Therm
 10. N/C
 11. Water_Level_Sensor
 12. Water_Level_Sensor
- CN12**
1. EMG
 2. WL_MAIN
 3. STANDBY
 4. TX
 5. RX
 6. RESET
 7. 5V
 8. GND
 9. 12V
 10. POWER ON

WA400 Sub Board Connectors



Error Type	Error Mode	Causes	Corrective Actions	Description of Photo
	Display			
Water Level Sensor	IE	<ul style="list-style-type: none"> Water level sensor fault Incorrect connections of the water level sensor terminal The hose part for the water level sensor is folded. Main PCB fault 	<ul style="list-style-type: none"> Check the water level sensor terminal connections and contacts. An error occurs if an incorrect water level sensor is used. Make sure to check the material code. (Abnormal operation) If the water level sensor is faulty, replace it. If the error persists despite taking the action above, replace the PBA. 	 <ul style="list-style-type: none"> Check the water level sensor frequency. Check it after the water level sensor and the connector are connected. Checking Part : Blue Color Wire Oragne Color Wire Frequency: Approx. 26.4 KHz without water (Min 25.9KHz)
Washing Motor Error and Hall Sensor Error	3E	<ul style="list-style-type: none"> Washing motor fault Washing motor hall sensor fault Incorrect connections of the washing motor/hall sensor connector Washing motor rotor and stator fault Main PCB fault 	<ul style="list-style-type: none"> Check the motor connector terminal connections and contacts. 3E is displayed because overloading occurs due to too much laundry. If the hall sensor terminal is faulty, replace the hall sensor. Check whether the stator of the motor cover is damaged. Check for coil disconnections due to foreign material. If the PBA control circuit is faulty, replace the PBA. 	 <ul style="list-style-type: none"> Check the motor Winding Coil Plug out the connector and read resistances at any two of the three terminals on Motor : Should be 19.3Ω (at 25°C)  <ul style="list-style-type: none"> Check the motor Hall Sensor Check the resistance on the main PCB motor (Between pins 2 and 4, 3 and 4 of the four (4) pins) Resistance : Approx. 2 to 4 MΩ Check the voltage when the power is on.
Water Supply Error	nf	<ul style="list-style-type: none"> Water supply valve fault Main PCB fault Freezing in the winter season 	<ul style="list-style-type: none"> If the water supply valve has a wire disconnected, replace it. Check whether the water supply valve is clogged with foreign material and whether water is supplied continually. Check whether no water is supplied because of freezing in the winter season. If the PBA relay operates abnormally, replace the PBA 	 <ul style="list-style-type: none"> Check the resistance for the water supply valve. Resistance : 0.9KΩ to 1.1KΩ between the terminals of the Water Supply Valve. Check whether there is foreign material in the Water supply valve filter.
Drain Error	nd	<ul style="list-style-type: none"> Freezing in the winter season Foreign materials in the drain pump Poor physical connection Drain pump fault Main PCB fault 	<ul style="list-style-type: none"> If the drain pump revolutions are restrained due to freezing in the winter season, check the method to remove the freezing and remove as directed. Check whether the revolutions of the drain pump motor are restrained by foreign material, and remove as directed. Check the wire connectors on Main PCB and Drain Pump ASSY. The connector or wire may have poor physical connection. Check the drain pump resistance. 	 <ul style="list-style-type: none"> Check the drain pump resistance. (Resistance : 13.5 ~ 16.5 Ω)
Communication Error	AE	<ul style="list-style-type: none"> The signals between the sub and main PBAs are not sensed. Incorrect wire connections between the sub and main PBAs. 	<ul style="list-style-type: none"> Check the wire connections and terminal contacts between the sub and main PBAs. Check for disconnected wires. Check whether the sub PBA is short-circuited because of moisture. If the main PBA's communication circuit is faulty, replace it. 	-
Switch Error (Main Relay Error)	E2	<ul style="list-style-type: none"> The Power button is continually pressed. A button other than the Power button is continually pressed. 	<ul style="list-style-type: none"> Check whether either the Power switch or a tact switch is continually pressed. Check whether the service PBA holding screws are fastened too tight. If they are fastened too tight, loosen them a little. If the main PBA switching IC on/off error has occurred, replace the main PBA. The "E2" error occurs if the main relay connections are incorrect. Check the connections. If there is no error in the connections, replace the main PBA. 	 <ul style="list-style-type: none"> Check the contact between the control panel buttons and their corresponding tact switch. There must be a gap between a control panel button and its corresponding micro switch. Otherwise, an error occurs after approx. 30 seconds has passed.

Door Error	<p>ds</p> <p>FL</p> <p>LO</p>	<ul style="list-style-type: none"> Door-Lock SW fault Reed SW fault Main PCB fault 	<ul style="list-style-type: none"> Check the Door-Lock SW terminal connections and contacts. Bring the probe of tester into contact with two terminals of Door-Lock SW. [DS Error] In state of Door Close, Check Reed SW Resistance. [FL Error] In state of Door Unlock, Check Motor Resistance. And In state of Door Lock, Check Door Lock Contact Resistance. [LO Error] In state of Door Unlock, Check Motor Resistance and Door Unlock Contact Resistance. If Resistance is satisfied with Spec, Replace the PBA. 	 <p>1. Check the resistance for Reed SW (Checking Part : White-Green Wire)</p> <ul style="list-style-type: none"> Resistance: Approx 0.2Ω between the terminals of Reed SW.  <p>2. Check the resistance for Motor (Checking Part : Black-Brown Wire)</p> <ul style="list-style-type: none"> Resistance: 33Ω to 46Ω between the terminals of Motor.  <p>Lock</p>  <p>Unlock</p> <p>3. Check the resistance for Lock/Unlock Contact (Checking Part : Lock White-Red Wire Unlock White-Blue Wire)</p> <ul style="list-style-type: none"> Resistance: Resistance: Approx 0.2Ω between the terminals of Contact. ☑ Check the Door Lock/Unlock state.
Water Leakage Error	LE	<ul style="list-style-type: none"> Check for any leakage. Foreign material in the DV case. Fault of a hose or incorrect part engagement in the product . 	<ul style="list-style-type: none"> Check for any leakage on the base, Hose, Valve and Tub connections and take any required action. During natural draining, this error occurs when the drain bellows are clogged with foreign material. Remove the foreign material. Check the drain motor operation. Replace if it does not operate normally. 	  
Overflow Error	OE	<p>Water level sensor fault.</p> <p>Freezing in the winter season.</p>	<ul style="list-style-type: none"> If the water level sensor has a functional error, replace it. Check the hose. This error occurs if it is torn or has a hole. This error occurs if water is frozen in the winter season. Use hair dryer to defrost hose. Consider relocating the unit to warmer location. 	 <p>Water level Sensor</p> 
Temperature Sensor Error	tE	<ul style="list-style-type: none"> Washing temperature sensor fault. Faulty and incorrect connections of sensor. Main PCB Fault. Freezing in the winter season. 	<ul style="list-style-type: none"> Check the connections of the temperature sensor. If the temperature sensor has a functional error, replace it. 	 <p>56.1</p>  <p>Check the thermistor resistance (Resistance at 20~30°C: 66.187~36.941KΩ)</p>

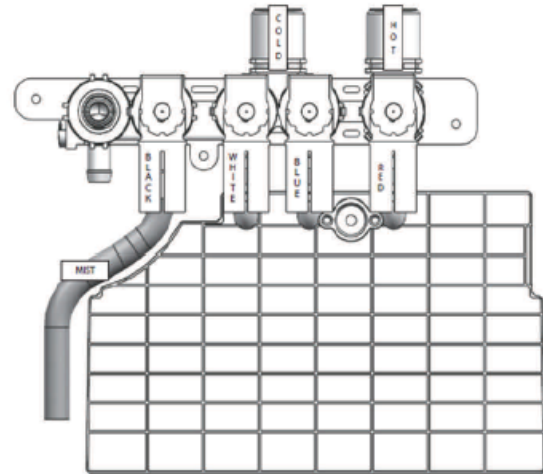


Fast Track Troubleshooting

Error Type	Error Mode	Causes	Corrective Actions	Description of Photo
	Display			
Unbalance Error	dc	<ul style="list-style-type: none"> Motor hall sensor fault Caused by the laundry contents 	<ul style="list-style-type: none"> Check the type of laundry. Check whether it may cause an unbalanced situation. Educate the consumer in this case is to press pause reposition the load or remove a few items. Press start to continue and complete the wash cycle. 	
MEMS Sensor Error	8E 8E1	If the output from the MEMs sensor is over 4.5V or under 0.5V and it continues for 5 seconds, this error occurs.		<p>MemS sensor will detect an error if too much vibration, this is normal.</p> <p>In no vibration and issue remains replace the Main PCB.</p>

Water valve connections for the Detergent Drawer

V1	V2	V3	V4	V5
N/C	Black	White	Blue	Red
N/C	Mist	Eco-Warm	Main (C)	Hot



It is normal for a small amount of water remaining in Detergent Drawer after it completes washing. Bleach is usually flushed out into the tub at the beginning of the washing. Also, its compartment is washed again during the following rinse cycle, removing any remnants.

Selecting Language

1. The "Select the Language" message appears.
2. Turn the Jog Dial to select language
3. Press Signal button to select

Laundry Touch Up Paints

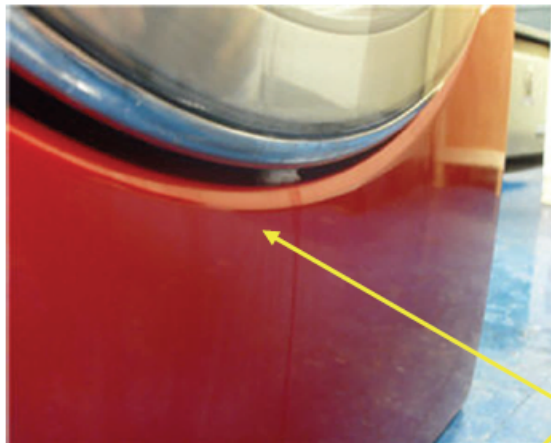
TOUCH UP PAINT, BLUE ONYX	DH81-11980A
TOUCH UP PAINT, IMPERIAL SILVER	DH81-11981A
TOUCH UP PAINT, NEAT WHITE	DH81-11982A
TOUCH UP PAINT, STRATUS GRAY	DH81-11983A
TOUCH UP PAINT, TANGO RED	DH81-11984A

Items Packed With Washer

BOLT-SPANER (10-13mm Wrench) DC60-40146A
 ASSY HOSE WATER DC97-15691A
 ASSY HOSE WATER DC97-15692A
 OWNER'S MAN. DC68-03133A (WA456/422/400*)
 CAP-FIXER DC67-00307A
 HOSE-HANGER DC62-10278A

Stacking Kit : (Model No : SK-5A/XAA) {N/A for Top Load Washer}

Samsung washers and dryers can be stacked to maximize usable space. An optional stacking kit is available for purchase from your Samsung retailer.



When using non-HE detergents, or using too much detergent for the water hardness and soil level of the clothing, over sudsing will occur. When this happens there will be leaks out of the detergent drawer and door. Please advise consumer of proper detergent usage.



Location considerations

Do not install your washer in areas where water may freeze, since your washer will always maintain some water in its water valve, pump, and hose areas. This can cause damage the belts, the pump, hoses and other components. **Operating temperature should be above 60°F/16°C.**

SUPPORT INFORMATION

Training — Plus One <http://my.plus1solutions.net/clientPortals/samsung/>
 Help — GSPN <http://service.samsungportal.com/>

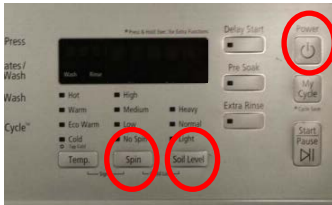
NOTICE

The unit sometimes will pause during Sanitize, or Pure Cycle, wash modes and appear not to be functional. The Sanitize and Pure Cycle wash cycles have target temperatures to assure washer performance. If the water temperature doesn't meet the target temperature during the wash cycle, the washer will automatically add extra time to allow the heater to bring the water up to the programmed, or target temperature. In this stage, the displayed time will pause and hold until the heating operation has been completed. It is at this point that the customer may feel that operation has stopped. (The maximum added programmed time is 30 minutes)

Testing the Water Level Sensor & Water Valves on the Hudson Model washer (WA400, 422, 456)

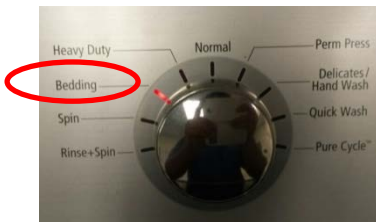
The best way of checking the water valves and water level sensor on the Hudson Washers is to put the washer machine into the **quick test mode** to activate each component.

Step1. With the power off, hold the **Spin + Soil Level + Power** to enter quick test mode. If done correctly all LED's will light up, let go of all the buttons at this point. The Version number will be displayed.



Step2. Turn the Jog dial so the version number disappears

Step3. Put the setting into Bedding a 2 digit number will be displayed as shown in the image below. Note that 60 means 2600HZ , only the middle digits are displayed on Hudson models.



Step4. Press the **Temp Key** to turn on the water valves. After turning the water valves on the displayed number should drop if water is added. With no water the number will be between 55 – 60. If you leave the valves running the number will stop around 40 when the tub is full of water. After the water is shut off (including any dripping), the number should eventually stop moving..



If water is being added to the tub and the displayed number does not move, the water pressure hose might be blocked or disconnected.

If the digits continue to fluctuate and do not stop after the water has stopped filling the tub, the water pressure hose might be leaking (Replace hose)

If the Water Level Sensor is defective or the connection is bad a 1E error will be displayed at startup.